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For: A METHOD OF APPLYING AN EDGE ELECTRODE PATTERN
TO A TOUCH SCREEN

- 1 1. A method of applying an edge electrode pattern to a touch screen, the
- 2 method comprising:
 - 3 depositing, on a first surface of a decal strip, conductive material in
 - 4 the form of an edge electrode pattern;
 - 5 placing the first surface of the decal strip on one edge of a touch
 - 6 screen;
 - 7 applying heat and pressure to an opposite surface of the decal strip
 - 8 until the edge electrode pattern is transferred from the first surface of the decal strip to the
 - 9 touch screen; and
 - 10 removing the decal strip.
- 1 2. The method of claim 1 further including the step of depositing a wire trace
- 2 pattern on the first surface of the decal strip.
- 1 3. The method of claim 2 further including the step of isolating the wire trace
- 2 pattern from the edge electrode pattern after the wire trace pattern and the edge electrode
- 3 pattern are transferred to the touch screen.
- 1 4. The method of claim 3 in which isolating includes using a laser to remove
- 2 material between the wire trace pattern and the edge electrode pattern.

1 5. The method of claim 1 further including depositing a wire trace pattern on
2 the decal strip and depositing an isolation layer between the wire trace pattern and the edge
3 electrode pattern.

1 6. The method of claim 5 in which the isolation layer is disposed between the
2 wire trace pattern and the edge electrode pattern and the edge electrode pattern is deposited
3 adjacent the wire trace pattern on the decal strip.

1 7. The method of claim 6 further including the step of depositing a protective
2 layer between the decal strip and the edge electrode pattern and the wire trace pattern.

1 8. The method of claim 5 in which the isolation layer is disposed over the wire
2 trace pattern and the edge electrode pattern is deposited on the isolation layer.

1 9. The method of claim 8 further including the step of depositing a protective
2 layer between the decal strip and the wire trace pattern.

1 10. The method of claim 1 in which heat and pressure is applied by a hot stamp
2 machine equipped with a heated pad disposed between a feed roll of decal paper and take up
3 roll and over a holder for the touch screen.

1 11. The method of claim 1 in which depositing includes screen printing the
2 conductive material onto the decal strip.

1 12. The method of claim 1 in which the temperature used to apply heat is
2 between 300 and 400°F and the pressure applied is between 15 Psi and 30 Psi.

1 13. The method of claim 7 in which the protective layer and the isolation layer
2 are a lead borosilicate glass composition.

1 14. The method of claim 9 in which the protective layer and the isolation layer
2 are a lead borosilicate glass composition.

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15. A touch screen manufactured by the method of claim 1.

1 16. A method of applying an edge electrode pattern and wire traces to a touch
2 screen, the method comprising:
3 depositing, on a first surface of a decal strip, a protective layer;
4 depositing, on the protective layer, conductive material in the form
5 of an edge electrode pattern and one or more wire traces adjacent the edge electrode pattern;
6 depositing an isolation layer over each wire trace;
7 placing the decal strip on a touch screen;
8 applying heat and pressure to the decal strip until the edge electrode
9 pattern, the wire traces, the protective layer, and the isolation layer are transferred from the
10 decal strip to the touch screen; and
11 removing the decal strip.

1 17. The method of claim 16 in which heat and pressure is applied by a hot stamp
2 machine equipped with a heated pad disposed between a feed roll of decal paper and take up
3 roll and over a holder for the touch screen.

1 18. A method of applying an edge electrode pattern and wire traces to a touch
2 screen, the method comprising:
3 depositing, on a first surface of a decal strip, a protective layer;
4 depositing, on the protective layer, conductive material in the form
5 of one or more wire traces;
6 depositing over the one or more wire traces, an isolation layer;
7 depositing, on the isolation layer, conductive material in the form of
8 an edge electrode pattern;
9 placing the decal strip on a touch screen;
10 applying heat and pressure to the decal strip until the edge electrode
11 pattern, the wire traces, the isolation layer, and the protective layer are transferred from the
12 decal strip to the touch screen; and
13 removing the decal strip.

1 19. The method of claim 18 in which heat and pressure is applied by a hot stamp
2 machine equipped with a heated pad disposed between a feed roll of decal paper and take up
3 roll and over a holder for the touch screen.

1 20. A decal for transferring an edge electrode pattern to a touch screen, the decal
2 comprising:
3 decal strip; and
4 on one surface of the decal strip, a conductive material printed in
5 the form of an edge electrode pattern.

1 21. The decal of claim 20 further including a wire trace pattern on the decal
2 strip.

1 22. The decal of claim 20 further including a wire trace pattern on the decal strip
2 and an isolation layer between the wire trace pattern and the edge electrode pattern.

1 23. The decal of claim 22 in which the isolation layer is disposed between the
2 wire trace pattern and the edge electrode pattern and the edge electrode pattern deposited
3 adjacent the wire trace pattern on the decal strip.

1 24. The decal of claim 23 further including a protective layer between the decal
2 strip and the edge electrode and the wire trace pattern.

1 25. The decal of claim 22 in which the isolation layer is disposed over the wire
2 trace pattern and the edge electrode pattern is deposited on the isolation layer.

1 26. The decal of claim 25 further including a protective layer between the decal

2 strip and the wire trace pattern.

1 27. A method of applying an edge electrode pattern to a touch screen, the
2 method comprising:

3 depositing, on a first surface of decal paper, conductive material in
4 the form of an edge electrode pattern, a wire trace pattern, and an isolation layer between
5 the edge electrode pattern and the wire trace pattern;

6 placing the first surface of the decal on a touch screen;

7 applying heat and pressure to an opposite surface of the decal paper
8 until the edge electrode pattern, the wire trace pattern, and the isolation layer are transferred
9 to the touch screen; and

10 removing the decal paper.

1 28. The method of claim 27 in which the isolation layer is disposed over the
2 wire trace pattern and the edge electrode pattern is disposed adjacent the wire trace pattern.

1 29. The method of claim 28 further including disposing a protective layer
2 between the decal paper and the wire trace pattern and the edge electrode pattern.

1 30. The method of claim 27 in which the isolation layer is disposed over the
2 wire trace pattern and the edge electrode pattern is disposed on the isolation layer.

1 31. The method of claim 30 further including disposing a protective layer
2 between the decal paper and the wire trace pattern.

1 32. The method of claim 27 in which heat and pressure is applied by a hot stamp
2 machine equipped with a heated pad disposed between a feed roll of decal paper and take up
3 roll and over a holder for the touch screen.

1 33. The method of claim 27 in which depositing includes screen printing.

1 34. The method of claim 27 in which the temperature used to apply heat is
2 between 300 and 400°F and the pressure applied is between 15 Psi and 30 Psi.

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35. A touch screen manufactured by the method of claim 27.

1 36. A method of applying an edge electrode pattern and wire traces to a touch
2 screen, the method comprising:
3 depositing, on a first surface of a decal paper, a protective layer;
4 depositing, on the protective layer, conductive material in the form
5 of an edge electrode pattern and one or more wire traces adjacent the edge electrode pattern;
6 depositing an isolation layer over each wire trace;
7 placing the decal on a touch screen;
8 applying heat and pressure to the decal paper until the edge electrode
9 pattern, the wire traces, the protective layer, and the isolation layer are transferred from the
10 decal paper to the touch screen; and
11 removing the decal paper.

1 37. A method of applying an edge electrode pattern and wire traces to a touch
2 screen, the method comprising:
3 depositing, on a first surface of a decal paper, a protective layer;
4 depositing, on the protective layer, conductive material in the form
5 of one or more wire traces;
6 depositing over the one or more wire traces, an isolation layer;
7 depositing, on the isolation layer, conductive material in the form
8 of an edge electrode pattern;
9 placing the decal on a touch screen;
10 applying heat and pressure to the decal paper until the edge
11 electrode pattern, the wire traces, the isolation layer, and the protective layer are
12 transferred from the decal paper to the touch screen; and
13 removing the decal paper.

1 38. A decal for transferring an edge electrode pattern and a wire trace pattern
2 to a touch screen, the decal comprising:
3 decal paper; and
4 on one surface of the decal paper, a conductive material printed in
5 the form of an edge electrode pattern and one or more wire traces proximate the edge
6 electrode pattern and electrically isolated therefrom.

1 39. The decal of claim 38 further including a protective layer between a) the
2 edge electrodes and wire traces and b) the decal paper, and an isolation layer over each
3 wire trace.

1 40. The decal of claim 38 further including a protective layer between the wire
2 traces and the decal paper, an isolation layer over each wire trace, and wherein the edge
3 electrode pattern is located on the isolation layer.

1 41. A method of applying an edge electrode pattern and a wire trace pattern to
2 a touch screen, the method comprising:
3 depositing, on a heat transfer decal paper, conductive material in
4 the form of an edge electrode pattern and a wire trace pattern;
5 placing the decal on a touch screen;
6 applying heat and pressure to the decal paper until the edge
7 electrode pattern and the wire trace pattern are transferred to the touch screen; and
8 removing the decal paper.

1 42. A decal for transferring an edge electrode pattern to a touch screen, the
2 decal comprising:
3 heat transfer decal paper; and
4 on the decal paper, a conductive material printed in the form of an
5 edge electrode pattern and one or more wire traces proximate the edge electrode pattern.

1 43. A method of applying an edge electrode pattern to a touch screen, the
2 method comprising:

3 depositing, on a first surface of a decal strip, conductive material in
4 the form of an edge electrode pattern;

5 employing a hot stamp machine equipped with a heated pad

6 disposed between a feed roll of decal paper and take up roll and over a holder for the
7 touch screen to place the first surface of the decal strip on one edge of the touch screen
8 and to apply heat and pressure to an opposite surface of the decal strip until the edge
9 electrode pattern is transferred from the first surface of the decal strip to the touch screen.